

EXECUTIVE SUMMARY

Purpose of the Document

The Cape Wind Energy Project developer, Cape Wind Associates, LLC (the applicant), proposes to build, operate, and eventually decommission an electric generation facility with a maximum electric output of 468 megawatts and an average output of 182.6 megawatts, in Nantucket Sound off the coast of Massachusetts (proposed action). The proposed action would generate electricity from wind energy resources on the Outer Continental Shelf. The applicant seeks to commence construction in 2009 and begin operation in 2010.

The applicant requests a lease, easement, right-of-way, and any other related approvals from the Department of the Interior, Minerals Management Service necessary to authorize construction, operation and eventual decommissioning of the proposed action. The Minerals Management Service's authority to approve, deny, or modify the Cape Wind Energy Project derives from the Energy Policy Act of 2005 (EPAAct – <http://www.mms.gov/2005EnergyPolicyAct.htm#Renewables>). Section 388 of the Act amended the Outer Continental Shelf Lands Act by adding subsection 8(p), which authorizes the Department of the Interior to grant leases, easements or right-of-ways on Outer Continental Shelf lands for activities that produce or support production, transportation, or transmission of energy from sources other than oil and gas, such as wind power.

The proposed action requires environmental review for Federal approval under Subsection 8(p) of the Outer Continental Shelf Lands Act. The National Environmental Policy Act provides the framework under which Federal agencies perform environmental review of projects for which they would be authorizing, funding, or undertaking on their own behalf. In this instance, the proposed federal action resulting in the need for environmental review under the National Environmental Policy Act is the issuance of a lease, easement or right-of-way and related approvals by the Minerals Management Service for authorizing the construction, operation and eventual decommissioning of the Cape Wind Energy Project (the proposed action).

This Draft Environmental Impact Statement provides a detailed description of the proposed action, including the construction, operation and maintenance, and decommissioning phases. An explanation of the alternative screening analysis, the locations and descriptions of the considered alternatives, as well as a comparison of impacts between the alternatives and the proposed action is also provided. The existing conditions of the affected environment are described and broken down in to the physical, biological and socioeconomic resources. A detailed analysis of the impacts on each of these resources according to construction, operation and maintenance, and decommissioning, is presented. Cumulative impacts and commitment of resources are discussed. The concept of an Environmental Management System is introduced that contains many of the mitigation measures and other commitments and requirements under which the proposed action would be constructed, operated, and decommissioned. Other important information contained in this Draft Environmental Impact Statement includes agency correspondence and coordination, and supplemental studies and reports prepared by the applicant.

Project Purpose and Need

The underlying purpose and need to which the agency is responding is to develop and operate an alternative energy facility that utilizes the unique wind resources in waters offshore of New England employing a technology that is currently available, technically feasible, and economically viable, that can interconnect with and deliver electricity to the New England Power Pool, and make a substantial contribution to enhancing the region's electrical reliability and achieving the renewable energy requirements under the Massachusetts and regional renewable portfolio standards.

The Massachusetts Energy Facility Siting Board found there was a need for at least 110 megawatts of energy resources beginning in 2007 with a much greater need within the following years (Energy Facility Siting Board, Siting Decision 2004). The Massachusetts and regional Renewable Portfolio Standards mandate that a certain amount of electricity come from renewable energy sources, such as wind. Specifically, the Massachusetts Renewable Portfolio Standard requires that all retail electricity providers in the state utilize new renewable energy sources for at least 2.5 percent of their power supply in 2006 and increasing this percentage to 4 percent by 2009 (<http://www.mass.gov/doer/rps/regs.htm>).

Proposed Action Description Overview

The proposed action entails the construction, operation and maintenance, and eventual decommissioning of an electric generating facility consisting of 130 wind turbine generators arranged in a grid pattern in the Horseshoe Shoal region of Nantucket Sound, Massachusetts (see [Figure E-1](#)). Each of the 130 wind turbine generators would generate electricity independently of each other. For this area of Nantucket Sound, the wind power density analysis conducted by the applicant determined that orientation of the array in a northwest to southeast alignment provides optimal wind energy potential for the wind turbine generators. This alignment would position the wind turbine generators perpendicular to prevailing winds, which are generally from the northwest in the winter and from the southwest in the summer for this geographic area in Nantucket Sound.

The wind turbine generators have a stated design life span of twenty years. However, this estimate is based on experience generated from land-based machines which are subject to higher levels of turbulence and arguably experience greater wear and tear than can be expected offshore where winds are less turbulent. It is possible that the proposed action could be operational beyond the minimum design life of twenty years.

Solid dielectric submarine inner-array cables (33 kilovolt) from each wind turbine generator would interconnect within the grid and terminate on an electrical service platform. The electric service platform would serve as the common interconnection point for all of the wind turbine generators. The proposed submarine transmission cable system (115 kilovolt) is approximately 12.5 miles in length (7.6 miles within the Massachusetts 3-mile territorial line) from the electric service platform to the landfall location in Yarmouth. The submarine transmission cable system consists of two parallel cables that would travel north to northeast in Nantucket Sound into Lewis Bay past the westerly side of Egg Island, and then make landfall at New Hampshire Avenue. The proposed onshore transmission cable system route from the landfall area to its intersection with the NSTAR electric right-of-way would be located entirely along existing paved right-of-ways where other underground utilities already exist. All of the roadways within Yarmouth and Barnstable in which the proposed transmission cable system would be placed are town owned and maintained roads with the exception of Routes 6 and 28, which are owned and maintained by the Massachusetts Highway Department. A portion of the onshore transmission cable system route would also be located underground within an existing maintained NSTAR Electric right-of-way.

Installation of the proposed action components would comprise five activities: (1) installation of the foundation monopiles; (2) erection of the wind turbine generators and electric service platform; (3) installation of the inner-array cables; (4) installation of the transmission cables from the electric service platform to the Barnstable Switching Station; and (5) installation of the scour protection around the monopiles and electric service platform piles. The electric service platform design is based on a piled jacket/template design with a superstructure mounting on top. The platform jacket and superstructure would be fully fabricated on shore and delivered to the work site by barges, where it would be installed.

The proposed method of installation of the submarine cables (both the inner array cables and the submarine transmission cables) would be accomplished by the Hydroplow embedment process,

commonly referred to as jet plowing. This method involves the use of a positioned cable barge and a towed hydraulically-powered jet plow device that simultaneously lays and embeds the submarine cable in one continuous trench from wind turbine generator to wind turbine generator and then to the electric service platform, or from the electric service platform to the landfall area.

The transition of the submarine transmission cables from water to land would be accomplished through the use of Horizontal Directional Drilling. Construction of the onshore transmission cable would occur in two phases. The first phase would consist of installing the ductbanks, conduits, and vaults. The second phase would consist of the installation of the onshore transmission cables, including splices and terminations.

It is anticipated that the main operation center would be located in the Town of Yarmouth. Here would be installed the remote monitoring and command center where all decisions concerning the operation of the offshore generating facility would be made. The service and maintenance vessels, supplies and personnel would be stationed at two additional onshore locations: a New Bedford location for parts storage and larger maintenance supply vessels and Falmouth for crew transport, since it is closer to the site.

Project Chronology

In November 2001, Cape Wind Associates, LLC sought permission from the U.S. Army Corps of Engineers to construct and operate a wind-powered electrical generating facility on Horseshoe Shoal in Nantucket Sound, Massachusetts. In December 2001, the U.S. Army Corps of Engineers determined that an environmental impact statement was required for the Cape Wind Energy Project. First, a Notice of Intent to prepare the environmental impact statement was published in the Federal Register and other public notices were issued. The Notice of Intent was published on January 30, 2002. Public scoping meetings were held in Boston and West Yarmouth on March 6 and March 7, 2002, respectively. Existing relevant data was then collected and reviewed to address issues discussed during scoping. The U.S. Army Corps of Engineers Draft Environmental Impact Statement was made available for public review and comment in November 2004. The public comment period lasted 60 days, commencing with a notice of availability published in the Federal Register. Public comment meetings were held on Nantucket, Martha's Vineyard, Cape Cod, and in Boston.

Prior to the enactment of the Energy Policy Act of 2005, there was a lack of clear federal regulatory authority for alternative energy projects proposed to be sited on the Outer Continental Shelf. In the absence of such authority, prior to Energy Policy Act of 2005, the U.S. Army Corps of Engineers had been acting as the lead agency for National Environmental Policy Act evaluation of the proposed Cape Wind Energy Project. Following adoption of the Energy Policy Act, and the amendments to the Outer Continental Shelf Lands Act, the Department of the Interior was given authority for issuing leases, easements, or rights-of-way for alternative energy project activities on the Outer Continental Shelf.

During the fall of 2005, the Minerals Management Service reviewed the Cape Wind application to determine its adequacy and evaluated how to proceed with its own National Environmental Policy Act evaluation. It was determined that the regulations and requirements under which the Minerals Management Service would authorize the proposed action are substantially different than those under which the U.S. Army Corps of Engineers would have authorized the proposed action, and so it was determined that a new Draft Environmental Impact Statement would need to be prepared. To ensure there was an efficient and timely National Environmental Policy Act analysis, the Minerals Management Service considered, and borrowed where appropriate, certain portions of the U.S. Army Corps of Engineers Draft Environmental Impact Statement for the proposed action. Minerals Management Service also treated public comments on the U.S. Army Corps of Engineers Draft Environmental Impact

Statement as scoping comments in Minerals Management Service's preparation of this Draft Environmental Impact Statement. The Minerals Management Service determined that an independent contractor would need to be hired to assist in the preparation of the Draft Environmental Impact Statement. A Memorandum of Understanding was prepared and signed in the spring of 2006, between Cape Wind and the Minerals Management Service, to support the environmental impact statement preparation process using an independent contractor. The contractor was selected by the Minerals Management Service in May of 2006 and work commenced on preparing a Draft Environmental Impact Statement. On May 30, 2006, the Minerals Management Service published in the Federal Register its Notice of Intent to prepare an environmental impact statement. This Notice also served to announce the initiation of the written scoping process for the environmental impact statement, and invited other Federal, State, tribal and local governments to consider becoming cooperating agencies in the preparation of the environmental impact statement.

During the remainder of 2006 and into 2007, the contractor worked with the application materials, the U.S. Army Corps of Engineers Draft Environmental Impact Statement, and other relevant and existing information to prepare the Draft Environmental Impact Statement. During this timeframe, the applicant continued to perform studies and submit new information, as well as respond to requests for additional information that were identified by Minerals Management Service and the contractor as necessary in order to prepare the Draft Environmental Impact Statement.

Summary Description of Alternatives Assessed

In order to conduct a comprehensive evaluation of reasonable alternative locations for an offshore wind energy facility that would be capable of serving the New England region, Minerals Management Service identified and initially screened nine alternative locations (in addition to the proposed location on Horseshoe Shoal) along the coast from Maine to Rhode Island. The sites were chosen based on geographic diversity, having at least some potential in terms of wind resources, and the necessary area required for the proposed facility size. In addition, in development of the alternatives, Minerals Management Service took into account comments received as a part of the scoping process. Specifically, the Phelps Bank Alternative was selected as a result of interest expressed in this location by the Massachusetts Office of Coastal Zone Management, and Offshore Nauset Alternative was chosen as a result of public interest in a deep water alternative.

These geographically diverse sites included:

- Offshore Portland, Maine
- Offshore Cape Ann, Massachusetts
- Offshore Boston, Massachusetts
- Offshore Nauset, Massachusetts (East of Nauset Beach)
- On Monomoy Shoals (east of Monomoy, Massachusetts)
- On Nantucket Shoals (southeast of Nantucket Island, Massachusetts)
- On Phelps Bank (southeast of Nantucket Island, Massachusetts)
- South of Tuckernuck Island
- East of Block Island, Rhode Island

Of these nine sites that were chosen as geographically diverse, seven sites were not selected for further environmental analysis because of physical limitations and/or constraints due to (1) water depth (should be < approximately 100 feet [30 meters] in depth to be considered economically feasible) (TRC, 2006); (2) extreme wave height (should be less than approximately 20 feet [6.1 meters] high in 50 feet [15.2 meters] of water depth); (3) presence of bedrock or large boulders (this is problematic both for installation of the monopiles and proper burial of electrical interconnection lines); (4) distance from site

to onshore transmission system (should be less than approximately 31 miles [50 kilometers]) for an underground alternating current transmission line; high voltage direct current transmission cables have not yet been proven to be a commercially available technology for offshore wind farms); and (5) the availability of technology to develop the site (development of floating platform technology for use in water depths >150 feet [45 meters] is beyond the milestones scheduled for project development) (see Section 3.3.4).

The sites which were not assessed for further evaluation include the Portland, Maine; Cape Ann, Massachusetts; Boston, Massachusetts; Nauset, Massachusetts (East of Nauset Beach); on Nantucket Shoals (southeast of Nantucket Island, Massachusetts); on Phelps Bank (southeast of Nantucket Island, Massachusetts); and east of Block Island, Rhode Island sites. Out of the group of nine geographic sites, the alternative sites selected for further environmental analysis include Monomoy Shoals and South of Tuckernuck Island.

In addition to the sites screened above, Minerals Management Service also screened three non-geographic based alternatives to the proposed action to see if they could produce electricity at a reasonable cost range to that of the proposed action. These design alternatives included:

- Smaller Project (half the megawatt capacity of the Proposed Alternative at the same location);
- Condensed Array (same number of turbines but closer together); and
- Phased Development (two phases of 65 turbines each)

The No Action Alternative was also included in the screening process. The analysis of the No Action Alternative provides a benchmark for Minerals Management Service in which to compare the magnitude of environmental impacts of the proposed action. The No Action alternative considers other strategies for addressing the demand for electricity in New England if the proposed action were not constructed, and the viability of those strategies and or impacts associated with those other strategies. This includes an assessment of energy efficiency, and the assessment of other energy options including fossil fuel technologies, and other alternative energy technologies.

Figure 3.3.5-1 shows the locations of the proposed alternatives that passed the first phase of screening and were therefore subject to an environmental resource and impact assessment. They include the proposed action, No Action, South of Tuckernuck Island, Monomoy Shoals, Smaller Project, Condensed Array, and Phased Development.

The South of Tuckernuck Island Alternative Site is located in the Atlantic Ocean southwest of Tuckernuck Island between Muskeget Channel to the west and the southwestern coast of Nantucket Island to the east in open waters. The Monomoy Shoals alternative site is approximately 3.5 miles (5.6 kilometers) southeast of Monomoy Island within the eastern approach to Nantucket Sound. The Smaller Project Alternative (a total of 65 wind turbine generators) would have the same electric service platform location and transmission cable location as the proposed action, and would be in the same foot print as the proposed action, but 65 wind turbine generators at the north, south and east sides of the proposed action configuration would be removed. The Condensed Array Alternative would be located in the same area as the proposed action but the wind turbine generators would be spaced closer together in a grid with a separation distance of 6 turbine rotor diameters by 6 turbine rotor diameters versus the proposed action which has wind turbine generator spacing of 6 x 9 turbine rotor diameters. The Phased Development Alternative involves constructing the full electric service platform and one half of the 130 wind turbine generators first, and then the remainder of the wind turbine generators later after the first phase has been installed and had a chance to operate so that monitoring of operational impacts can take place.

Principal Issues and Concerns

The following is a general summary of the issues and concerns raised in comments combined from both the Minerals Management Service and the U.S. Army Corps of Engineers processes. A number of comments received on the U.S. Army Corps of Engineers Draft Environmental Impact Statement dealt with issues and concerns about how certain information was presented or analyses performed. Minerals Management Service had taken these comments and addressed them either internally or through requests to Cape Wind such that the comments would be dealt with during development of the Minerals Management Service Draft Environmental Impact Statement (see Section 7 for a full presentation of scoping comments and issues). This Draft Environmental Impact Statement has addressed all comments to the extent they are applicable and necessary to reach conclusions as to the scope and extent of the proposed action characteristics and potential impacts. The comments are summarized below in the following categories:

- **Regulatory Process**
- **Alternatives Analysis**
- **Construction, Operations, Decommissioning** – Activities, Methods, and Materials
- **Physical Resources** – This section contains comments on Geology and Sediments, Oceanography, Water Quality, Air and Climate, Noise, and Electric Magnetic Fields.
- **Biological Resources** – This section contains comments on Avian and Bat Resources, Freshwater and Coastal Wetlands, Wildlife, Fisheries –Impacts to Commercial and Recreational Fishing’ Fisheries – Environmental Impacts, Benthos, Vegetation including eelgrass and macroalgae, and Threatened & Endangered Species
- **Socioeconomic Resources and Land Uses** – This contains comments on Urban and Suburban Infrastructure, Population and Economic Background, Visual Resources, Cultural Resources, Recreation and Tourism, Competing Uses in the Vicinity of The Project
- **Navigation and Transportation** – Overland Transportation Arteries, Airport Facilities, Port Facilities, Communications

Regulatory Process: Comments with respect to the regulatory process generally fell into the following subtopics: public trust issues; objectivity concerns/conflicts; request for further review/information/data in the new Draft Environmental Impact Statement; homeland security; need for national policy for use of ocean resources; the Ocean Sanctuaries Act; state boundary issues; Marine Mammal Protection Act; compensatory mitigation; the U.S. Army Corps Engineers jurisdiction; and inclusion of agency comments.

In addition, some of the comments summarized under the regulatory heading are no longer applicable to review under the Minerals Management Service jurisdiction. For instance, many comments were made that the U.S. Army Corps of Engineers was not the appropriate review agency, and as the Minerals Management Service is now reviewing the proposed action, this type of comment is no longer applicable.

Alternatives Analysis: Comments with respect to the types of alternatives considered generally fell under the following six categories: on land; further offshore/deeper water and other offshore locations; smaller scale and/or phased; alternative technologies, alternate configurations, and energy conservation.

Construction, Operation, and Decommissioning: Comments pertaining to construction, operation, and decommissioning of the proposed action generally fell into the following subtopics: decommissioning activities needed to be more thoroughly presented and discussed; Oil Spill Response Plan; design, performance, stability and maintenance; public safety; pollution prevention; grid integration problems; inaccurate wind production numbers/ production capacity; construction issues; taxes and insurance certificates; monitoring before, during, and after construction; and onshore construction concerns/ Storm Water Pollution Prevention Plan.

Physical Resources: The comments submitted for the various physical resources ranged from concern over inadequate data collection for the baseline condition; general lack of characterization of impacts due to physical processes such as sand migration, alteration of waves and currents, noise propagation and generation of electromagnetic fields; inadequate modeling efforts for sediment resuspension and transport, spill trajectory analysis, and underwater noise transmission. Other commenters indicated that monitoring and mitigation measures were needed to gain a better understanding of physical processes and then offset potentially adverse impacts through mitigation measures. Comments with respect to air and climate generally focused on better characterization of how the proposed action relates to global warming, more characterization of public health effects as they relate to purported emission reductions; description of potential visibility improvement, and providing a summary of local meteorological data.

Biological Resources: Comments with respect to biological resources centered on several overall concerns such as lack of adequate baseline data for the diverse array of species occurring on the ocean floor, in the water, and in the air around the turbines, the need for expanded discussion of mitigation measures and monitoring approaches, and more information on alternatives. For on land resources, commenters questioned whether the construction methods represented Best Management Practices, whether there was adequate discussion of short and long term effects, and that not much project specific data was collected on species occurrence along the transmission line route. For wildlife in general, commenters felt that the assessment of harm was not species specific, there was no monitoring plan for wildlife, and that only non-project specific data covering the larger Nantucket Sound region were used to represent the pinnipeds and other smaller marine mammals.

Regarding commercial and recreational fisheries, many comments reflected inadequacy in the data collected up to the time of the release of the U.S. Army Corps of Engineers Draft Environmental Impact Statement. Largely in response to these comments, Minerals Management Service has subsequently been provided more data from the applicant that has been incorporated into this Draft Environmental Impact Statement. Commenters expressed concern about the quality of the data presented, the absence of certain data, such as on recreational fishing activity, and concern that the use of statistical data collected for larger regions and for other intended uses was being mis-applied and could therefore understate actual catches and where the economic benefits or harm might accrue. From a fish biology perspective, comments ranged from criticism of the thoroughness of the impact characterizations, inaccuracy in the representation of short and long term potential impacts to the fishery resource and habitats, and the lack of mitigation. Comments with respect to benthos were somewhat similar to those for fish, namely that there were baseline data limitations, particularly benthic habitat mapping, that there was inadequate presentation of a thorough range of potential impacts from all phases of the proposed action, and that the relationship between benthos and other fish and wildlife species was not discussed.

Socioeconomic Resources and Land Use: Comments with respect to socioeconomics ranged from incomplete assessment of the costs and benefits to local economies, the reality of purported changes in dependency on foreign oil or reduction in energy costs, and inaccurate assessment of impacts to property values and other negative economic impacts to issues surrounding environmental justice and who really benefits and who pays from the construction and operation of the proposed action. Some comments were

also received stating that the economics of the proposed action should be shared and that it is questionable that the proposed action is economically viable, particularly in the absence of subsidies, or legislated renewable portfolio standards.

Comments with respect to human resources centered on past, present and future use of the site of the proposed action. Comments with respect to cultural resources generally fell under three main subtopics, including a need for documented compliance with Section 106 of the National Historic Preservation Act, inadequacy of the identification of historic properties potentially affected, and concerns about adverse affects on historic properties. The comments with respect to aesthetic impacts covered a broad spectrum, from statements that the proposed action would have positive or no impacts to aesthetics, to comments that the proposed action would have unacceptable negative impacts to aesthetics. Also, given the visual simulation approach taken, comments were also received that this approach was inadequate because it did not analyze enough different daylight and weather conditions, and that visual simulations from other locations and more varied distances were needed.

Navigation and Transportation: Comments focused on the hazard to mariners and aviators that cross Nantucket Sound that could include actual collision with the structures as well as adverse affects on navigation equipment such as radar. Other commenters stated dissatisfaction with having to alter how they use the area around the site of the proposed action, whether it is for recreational boating, commercial fishing, or flights between the mainland and the islands. Possible interference with various forms of communication/navigation systems, such as Federal Aviation Administration/Department of Defense radar, instrument landing system, global positioning system, and VHF Omni-directional Radio Range, leading to aircraft and public safety issues were stated as inadequately analyzed.

Impact Level Definitions

Anticipated impacts to physical, biological, socioeconomic resources and land use, and navigation and transportation from the proposed action are categorized as negligible, minor, moderate, or major. These impact levels are used in the impact section of the Draft Environmental Impact Statement to provide consistency in the assessment of environmental impacts and socioeconomic issues.

The impact levels for biological and physical resources are used for the analysis of water quality, air quality, marine and terrestrial mammals, marine and coastal birds, fish resources, sea turtles, coastal and seafloor habitats, archaeological resources, and areas of special concern (such as essential fish habitats, marine sanctuaries, parks, refuges, and reserves). The four impact levels are defined as follows:

(1) Negligible

- No measurable impacts.

(2) Minor

- Most impacts to the affected resource could be avoided with proper mitigation, or
- If impacts occur, the affected resource would recover completely without any mitigation once the impacting agent is eliminated.

(3) Moderate

- Impacts to the affected resource are unavoidable, and
- The viability of the affected resource is not threatened although some impacts may be irreversible, or

- The affected resource would recover completely if proper mitigation is applied during the life of the proposed action or proper remedial action is taken once the impacting agent is eliminated.

(4) Major

- Impacts to the affected resource are unavoidable, and
- The viability of the affected resource may be threatened, and
- The affected resource would not fully recover even if proper mitigation is applied during the life of the proposed action or remedial action is taken once the impacting agent is eliminated.

The impact levels for socioeconomic issues are used for the analysis of demography, employment, and regional income; land use, visual and infrastructure; fisheries; tourism and recreation; socio-cultural systems; and environmental justice. Although impact levels for direct physical impacts to archaeological resources use the definitions above, indirect visual impacts to archaeological resources are defined by the following criteria. The four impact levels are defined as follows:

(1) Negligible

- No measurable impacts.

(2) Minor

- Adverse impacts to the affected activity or community could be avoided with proper mitigation, or
- Impacts would not disrupt the normal or routine functions of the affected activity or community, or
- Once the impacting agent is eliminated, the affected activity or community would return to a condition with no measurable effects from the proposed action without any mitigation.

(3) Moderate

- Impacts to the affected activity or community are unavoidable, and
- Proper mitigation would reduce impacts substantially during the life of the proposed action, or
- The affected activity or community would have to adjust somewhat to account for disruptions due to impacts of the proposed action, or
- Once the impacting agent is eliminated, the affected activity or community would return to a condition with no measurable effects from the proposed action if proper remedial action is taken.

(4) Major

- Impacts to the affected activity or community are unavoidable.
- Proper mitigation would reduce impacts somewhat during the life of the proposed action.

- The affected activity or community would experience unavoidable disruptions to a degree beyond what is normally acceptable, and
- Once the impacting agent is eliminated, the affected activity or community may retain measurable effects of the proposed action indefinitely, even if remedial action is taken.

Summary of Impacts

A summary of overall impacts organized by resources is provided in [Table E-1](#) and a full presentation of impacts is located in Section 5. A description of mitigation measures under consideration can be found in Section 9.

Supporting Reports

The Draft Environmental Impact Statement draws directly from numerous technical and environmental reports (refer to the bibliography at Section 10.1) and also takes into consideration information in many more additional reports (refer to the bibliography in Section 10.3), as well as a substantial amount of other available scientific and technical information (refer to the bibliography in Section 10.2). Reports referenced in Section 10.1 are included directly following applicable sections of text, appearing as “(Report no. x)” and include hyperlinks so that the reader of the electronic version can click on the report referenced in the text and immediately have access to the full referenced report (the CD copy of the Draft Environmental Impact Statement contains the full text of all the reports referenced). In an effort to conserve paper and reduce the bulk of the Draft Environmental Impact Statement, hard copies of the reports are not provided. The reports and Draft Environmental Impact Statement are also available on the Minerals Management Service’s web site at: <http://www.mms.gov/offshore/RenewableEnergy/CapeWind.htm>, or the reports and Draft Environmental Impact Statement can be obtained by contacting either of the following people:

For further information regarding this statement please contact:

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381 Elden Street
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For further information regarding the project please contact:

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Hard copies of the Draft Environmental Impact Statement have also been sent to the following libraries:

- Edgartown Free Public Library
- Boston Public Library
- Hyannis Public Library
- Falmouth Public Library
- Eldredge Public Library
- Nantucket Atheneum

TABLE E-1		
Summary of Impacts		
Resource	Impacts	
	Construction Impacts	Operation Impacts
Regional Geologic Setting	minor	minor
Noise	Onshore: minor Offshore: minor Underwater: minor	Onshore: negligible Offshore: negligible Underwater: negligible
Oceanography	Currents: negligible Waves: negligible Salinity: negligible Temperature: negligible Sediment Transport: minor Water depth/bathymetry: minor	Currents: minor Waves: negligible Salinity: negligible Temperature: negligible Sediment Transport: minor Water depth/bathymetry: minor
Climate and Meteorology	minor	negligible
Air Quality	Public Health: negligible Visibility: negligible Emissions: minor	Public Health: negligible Visibility: negligible Emissions: minor (beneficial to climate change)
Water Quality	minor	negligible (with the exception of spills)
Electric and Magnetic Fields	negligible	negligible
Terrestrial Vegetation	negligible to minor	negligible to minor
Coastal and Intertidal Vegetation	negligible to minor	negligible (negligible to minor for repairs, depending on location)
Terrestrial and Coastal Faunas other than Birds	negligible to minor	negligible (minor for migratory bats)
Avifauna	Terrestrial Birds: Raptors - negligible Passerines - minor Coastal Birds: negligible to minor Marine Birds: minor to moderate Pelagic Species - minor Waterfowl and Non-Pelagic Water Birds - minor	Terrestrial Birds: Raptors - negligible. Passerines – minor to negligible. Coastal Birds: negligible to moderate Marine Birds: negligible to moderate Pelagic Species - minor Waterfowl and Non-Pelagic Water Birds - minor
Subtidal Offshore Resources	Soft-Bottom Benthic Invertebrate Communities: minor Shellfish: minor Meiofauna: minor Plankton: negligible	Soft-Bottom Benthic Invertebrate communities: minor Shellfish: minor Meiofauna: minor Plankton: minor
Non-ESA Marine Mammals	Acoustical Harassment: minor Vessel Strikes: minor Vessel Harassment: minor Temporary Reduced Habitat: minor Turbidity: negligible to moderate (due to pile driving) Pollution/ Potential Spills: minor	Acoustical Harassment: negligible EMF: negligible Pollution/ Potential Spills: minor to moderate Vessel Strikes: minor Vessel Harassment: minor Fouling Communities: negligible to minor

TABLE E-1		
Summary of Impacts		
Resource	Impacts	
	Construction Impacts	Operation Impacts
Fisheries	<i>Finfish:</i> minor <i>Demersal Eggs and Larvae:</i> moderate <i>Commercial & Recreational Fishing/Gear:</i> minor	<i>Commercial & Recreational Fishing/Gear:</i> Negligible to minor <i>Sound and Vibration:</i> negligible to minor <i>Vessel Traffic:</i> negligible <i>EMF:</i> negligible <i>Lighting:</i> negligible/none <i>Alterations to Waves, Currents, Circulation:</i> negligible <i>Habitat Change:</i> minor <i>Displacement of Prey:</i> none
EFH	<i>Benthic/Demersal:</i> negligible to minor <i>Water Column:</i> negligible to minor <i>SAV/Eelgrass:</i> negligible to minor	<i>Benthic/Demersal:</i> negligible to minor <i>Water Column:</i> negligible to minor <i>SAV/Eelgrass:</i> negligible to minor
T&E	<i>Sea turtles:</i> negligible to minor <i>Cetaceans:</i> negligible to minor <i>Avifauna:</i> negligible to minor <i>Eastern Cottontail Rabbit:</i> negligible	<i>Sea Turtles:</i> negligible to minor <i>Cetaceans:</i> negligible to minor <i>Avifauna:</i> minor to moderate <i>Eastern Cottontail Rabbit:</i> negligible
Urban and Suburban Infrastructure	negligible to minor	negligible
Population and Economics	minor	minor
Environmental Justice	Negligible (i.e., not a disproportionately high impact on minority or low income populations)	Negligible (i.e., not a disproportionately high impact on minority or low income populations)
Visual Resources	minor	moderate Impacts on Shore (Major impacts on-water in close proximity to proposed action)
Cultural Resources	minor	Pending on the outcome of Section 106 process
Recreation and Tourism	minor	minor
Competing Uses of Waters and Seabed	minor	minor (except for impacts to Figawi Race which are moderate)
Overland Transportation Arteries	minor	negligible
Airport Facilities and Aviation Traffic	negligible to minor	minor
Port Facilities and Vessel Traffic	minor	minor (sailing vessel impact expected to be moderate)
Communications: EMF, Signals, and Beacons	minor	minor